

IN THE CLAIMS:

Please cancel claims 431 and 432 without prejudice or disclaimer, and add new claims 433 to 461 as follows:

1-430. (Previously cancelled)

431. (Cancelled)

432. (Cancelled)

433. (New) A method of separating one or more types of selected nucleic acids having at least two portions from other nucleic acids in a sample, the method comprising:

providing two or more types of nanoparticles having oligonucleotides attached to them, the oligonucleotides being present on surface of the nanoparticles at a surface density sufficient so that the nanoparticles are stable, at least some of the oligonucleotides attached to each type of nanoparticles have a sequence complementary to at least one portion of a specific type of selected nucleic acid; and

contacting the sample and nanoparticles under conditions effective to allow hybridization of at least some of the oligonucleotides on the nanoparticles with the selected nucleic acids so that the nanoparticles hybridized to the selected nucleic acids aggregate and precipitate.

434. (New) The method of Claim 433 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm².

435. (New) The method of Claim 434 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm².

436. (New) The method of Claim 435 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density from about 15 picomoles/cm² to about 40 picomoles/cm².

437. (New) The method of Claim 433 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

438. (New) The method of Claim 437 wherein the nanoparticles are gold nanoparticles.

439. (New) A method of separating one or more types of selected nucleic acids having at least two portions from other nucleic acids in a sample, the method comprising:

providing two or more types of nanoparticles having oligonucleotides attached thereto, the oligonucleotides comprising at least one type of recognition oligonucleotide, each of the recognition oligonucleotides comprising a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide, the oligonucleotides on each of the types of nanoparticles having a sequence complementary to the sequence of one of the portions of a selected nucleic acid; and

contacting the sample and nanoparticles under conditions effective to allow hybridization of the oligonucleotides on the nanoparticles with the selected nucleic acids so that the nanoparticles hybridized to the selected nucleic acids aggregate and precipitate.

440. (New) The method of Claim 439 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

441. (New) The method of Claim 439 wherein the spacer portion comprises at least about 10 nucleotides.

442. (New) The method of Claim 441 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

443. (New) The method of Claim 439 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

444. (New) The method of Claim 439 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm².

445. (New) The method of Claim 444 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm².

446. (New) The method of Claim 445 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of from about 15 picomoles/cm² to about 40 picomoles/cm².

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447. (New) The method of Claim 439 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

448. (New) The method of Claim 447 wherein the nanoparticles are gold nanoparticles.

449. (New) A method of separating one or more types of selected nucleic acids having at least two portions from other nucleic acids in a sample, the method comprising:

providing two or more types of nanoparticles having oligonucleotides attached thereto, the oligonucleotides comprising:

at least one type of recognition oligonucleotide, each of the types of recognition oligonucleotides comprising a sequence complementary to at least one portion of the sequence of a select nucleic acid; and

a type of diluent oligonucleotide; and

contacting the sample and nanoparticles under conditions effective to allow hybridization of at least some of the oligonucleotides on the nanoparticles with the selected

nucleic acids so that the nanoparticles hybridized to the selected nucleic acids aggregate and precipitate.

450. (New) The method of Claim 449 wherein, each of the recognition oligonucleotides comprises a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide.

451. (New) The method of Claim 450 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

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cont. 452. (New) The method of Claim 450 wherein the spacer portion comprises at least about 10 nucleotides.

453. (New) The method of Claim 452 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

454. (New) The method of Claim 450 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

455. (New) The method of Claim 449 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm².

456. (New) The method of Claim 455 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm².

457. (New) The method of Claim 456 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of from about 15 picomoles/cm² to about 40 picomoles/cm².

458. (New) The method of Claim 450 wherein the diluent oligonucleotides contain about the same number of nucleotides as are contained in the spacer portions of the recognition oligonucleotides.

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6004.
459. (New) The method of Claim 458 wherein the sequence of the diluent oligonucleotides is the same as that of the spacer portions of the recognition oligonucleotides.

460. (New) The method of Claim 449 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

461. (New) The method of Claim 460 wherein the nanoparticles are gold nanoparticles.
